BIOMEDICAL ENGINEERING

CU Boulder's Biomedical Engineering program offers students a flexible degree program to achieve their degree and research goals. Biomedical engineering is an exciting, multidisciplinary field that lies at the intersection of medicine, biology and engineering.

With a cross-listed curriculum and an interdisciplinary faculty roster, the BME program delivers a multi-faceted and rigorous education in biomedical engineering. Our department consists of 36 faculty members from multiple backgrounds and disciplines. They conduct research in the areas of biomechanics, tissue engineering, biomaterials, drug delivery, molecular imaging, image-guided therapy, point-of-care diagnostics, biosensors, prosthetics, bioastronautics, systems biology and many more.

Our program offers students the opportunity to take courses in any of the following areas:

- Biomechanics
- Imaging and Diagnostics
- Medical Devices
- Neuroengineering
- Therapeutics

The BME program is directed by Professor Mark Borden. For more information, visit the Biomedical Engineering Program (https://www.colorado.edu/bme/) website.

Course code for this program is BMEN.

Master's Degree

- Biomedical Engineering - Master of Science (MS) (https://catalog.colorado.edu/graduate/colleges-schools/engineering-applied-science/programs-study/biomedical-engineering/biomedical-engineering-master-science-ms/)

Doctoral Degree

- Biomedical Engineering - Doctor of Philosophy (PhD) (https://catalog.colorado.edu/graduate/colleges-schools/engineering-applied-science/programs-study/biomedical-engineering/biomedical-engineering-doctor-philosophy-phd/)

Faculty

While many faculty teach both undergraduate and graduate students, some instruct students at the undergraduate level only. For more information, contact the faculty member's home department.

Ahmed, Alaa A. (https://experts.colorado.edu/display/fisid_144736/)
Assistant Professor; PhD, University of Michigan

Alistar, Mirela (https://experts.colorado.edu/display/fisid_164177/)
Assistant Professor; PhD, Technical University of Denmark

Anderson, Allison P. (https://experts.colorado.edu/display/fisid_156275/)
Assistant Professor

Bates, Novella
Instructor

Borden, Mark A. (https://experts.colorado.edu/display/fisid_148514/)
Associate Professor; PhD, University of California, Davis

Bottenus, Nick (https://experts.colorado.edu/individual/fisid_165371/)
Assistant Professor; PhD, Duke University

Calve, Sarah (https://experts.colorado.edu/individual/fisid_165779/)
Associate Professor; PhD, University of Michigan

Cha, Jennifer N. (https://experts.colorado.edu/display/fisid_151746/)
Professor; PhD, University of California, Santa Barbara

Chatterjee, Anushree (https://experts.colorado.edu/display/fisid_151712/)
Associate Professor; PhD, University of Minnesota

Clark, Torin K. (https://experts.colorado.edu/display/fisid_155959/)
Assistant Professor; PhD, Massachusetts Institute of Technology

Davis, Robert H. (https://experts.colorado.edu/individual/fisid_113653/)
Associate Faculty Director; PhD, Stanford University

Ding, Xiaoyun (https://experts.colorado.edu/display/fisid_158563/)
Assistant Professor; PhD, Pennsylvania State University

Ferguson, Virginia L. (https://experts.colorado.edu/display/fisid_110131/)
Associate Professor; PhD, University of Colorado Boulder

Fitzgerald, Jessica (https://experts.colorado.edu/individual/fisid_167401/)
Instructor; PhD, Northeastern University

Fox, Jerome Michael (https://experts.colorado.edu/display/fisid_156682/)
Assistant Professor; PhD, University of California, Berkeley

Gopinath, Juliet T. (https://experts.colorado.edu/display/fisid_147075/)
Associate Professor; PhD, Massachusetts Institute of Technology

Huang, Shu-Wei (https://experts.colorado.edu/display/fisid_159847/)
Assistant Professor; PhD, MIT, Cambridge

Jayaram, Kaushik (https://experts.colorado.edu/display/fisid_165370/)
Assistant Professor; PhD, University of California-Berkeley

Layer, Ryan M. (https://experts.colorado.edu/display/fisid_163567/)
Assistant Professor; PhD, University of Virginia

Lynch, Maureen Ellen (https://experts.colorado.edu/display/fisid_163404/)
Assistant Professor; PhD, Cornell University

McLeod, Robert R. (https://experts.colorado.edu/display/fisid_107547/)
Professor; PhD, University of Colorado Boulder

Mukherjee, Debanjan (https://experts.colorado.edu/individual/fisid_164181/)
Assistant Professor; PhD, University of California-Berkeley

Murray, Todd W. (https://experts.colorado.edu/display/fisid_146549/)
Professor; PhD, Johns Hopkins University

Myers, Chris (https://experts.colorado.edu/display/fisid_167168/)
Professor; PhD, Stanford University

Neu, Corey P. (https://experts.colorado.edu/display/fisid_156210/)
Associate Professor; PhD, University of California, Davis

Park, Won (https://experts.colorado.edu/display/fisid_122676/)
Associate Professor, Associate Chair; PhD, Georgia Institute of Technology

Piestun, Rafael (https://experts.colorado.edu/display/fisid_118538/)
Professor; PhD, Israel Instit of Tech (Israel)

Regueiro, Richard A. (https://experts.colorado.edu/display/fisid_134705/)
Associate Professor; PhD, Stanford University

Rentschler, Mark E. (https://experts.colorado.edu/display/fisid_146091/)
Associate Professor; PhD, University of Nebraska-Lincoln

Sankaranarayanan, Sriram (https://experts.colorado.edu/display/fisid_147413/)
Associate Professor; PhD, Stanford University

Shields, C. Wyatt IV (https://experts.colorado.edu/individual/fisid_165173/)
Assistant Professor; PhD, Duke University

Tan, Wei (https://experts.colorado.edu/display/fisid_141464/)
Associate Professor; PhD, University of Illinois at Chicago

Welker, Cara
Assistant Professor; PhD, Stanford University

Yeh, Tom (https://experts.colorado.edu/display/fisid_151584/)
Associate Professor; PhD, Massachusetts Institute of Technology

Courses

BMEN 5117 (3) Anatomy and Physiology for Biomedical Engineering
The main objective of this multidisciplinary course is to explore human physiological function from the viewpoint of an engineer. It provides an introduction to human anatomy and physiology with a focus on learning anatomical structures, biological signaling, physiological and pathological conditions, as well as fundamental biomedical engineering concepts that apply quantitative analyses (mass transfer, fluid dynamics, mechanics, modeling) and engineering concepts (e.g., device design to restore defective physiological functions) to understand physiology and pathology.
Equivalent - Duplicate Degree Credit Not Granted: BMEN 4117
Requisites: Restricted to graduate Biomedical Engineering students only.

BMEN 5840 (1-6) Independent Study
Provides opportunities for independent study at the graduate level. Subject and/or project agreed upon by the student and instructor to fit the needs of the student.
Repeatable: Repeatable for up to 30.00 total credit hours.
Requisites: Restricted to graduate Biomedical Engineering students only.

BMEN 5939 (1-6) Biomedical Engineering Internship
Grants credit to international graduate students for conducting research via professional research opportunities in the biomedical engineering field. Students are responsible for securing their own internships.
Repeatable: Repeatable for up to 6.00 total credit hours.
Requisites: Restricted to graduate students only.

BMEN 6519 (1-3) Special Topics in Biomedical Engineering
Credit hours and subject matter to be arranged.
Repeatable: Repeatable for up to 12.00 total credit hours. Allows multiple enrollment in term.

BMEN 6949 (1) Master's Candidate for Degree
Credit hours and subject matter to be arranged.

BMEN 6950 (1-6) Master's Thesis
Work with a faculty advisor on a masters thesis.
Repeatable: Repeatable for up to 6.00 total credit hours.
Requisites: Restricted to graduate Biomedical Engineering students only.

BMEN 7840 (1-6) Independent Study
Provides opportunities for independent study at the graduate (PhD) level. Subject and/or project agreed upon by the student and instructor to fit the needs of the student.
Requisites: Restricted to Biomedical Engineering BMEN-PhD students only.

BMEN 8990 (1-10) Doctoral Dissertation
Work with a faculty advisor on a doctoral dissertation.
Repeatable: Repeatable for up to 60.00 total credit hours.
Requisites: Restricted to Biomedical Engineering (BMEN) Ph.D. graduate students only.